

NEIGHBOR EFFECT CANCELLATION IN
MEMORY ARRAY ARCHITECTURE

Noam Eshel

ABSTRACT

Non-volatile memory (NVM) cells are sensed using a forced neighbor signal to eliminate improper readings generated by a neighbor effect. A selected NVM cell is sensed using a near-ground signal by applying a potential to a first terminal, coupling a second terminal to ground, and then decoupling the second terminal and comparing the resulting cell signal with a reference signal as both signals are developing (i.e., increasing from ground). A forced neighbor signal is applied to one more neighboring cells such that as the sensed cell signal develops (increases from ground), the forced neighbor signal develops at a similar rate, thereby maintaining a voltage across the neighboring cells close to zero and thus preventing leakage of the sensed cell signal through the neighbor cell(s). A dc sensing approach utilizes a current source and grounded resistor to minimize leakage through the neighbor cell(s).